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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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GROUP 1700

Application Number: 10/685,739
Filing Date: October 14, 2003
Appellant(s): LARSON ET AL.

Marc S. Hanish
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed January 22, 2007 appealing from the Office action mailed August 15, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

Claims 8, 11, 13, 14, 16, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoda; Takashi et al. (US 5,496,408 A) and Shinozuka; Shyuhei et al. (US 6,315,858 B1) in view of Ohmi; Tadahiro et al. (US 5,313,982 A). It was originally noted by Appeal Center manager Toi Johnson[1] that claim 16 was not enumerated in the Examiner's August 15, 2006 final rejection. The Examiner's response to the concerns of the AC manager was originally expressed in the March 27, 2007 email and states that all the claim 16 limitations are addressed in the Examiner's analysis of claim 8 (depending on claims 1-7) which is considerably more restrictive than claim 16 which depends only on claims 1 and 15.

Claims 8, 11, 13, 14, 17, 18, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoda; Takashi et al. (US 5,496,408 A) and Shinozuka; Shyuhei et al. (US 6,315,858 B1) in view of Ohmi; Tadahiro et al. (US 5,313,982 A). Claim 19 depends from claim 18 as noted by Applicant in page 9 of the Brief. The Examiner originally added dependent claim 19 to the anticipation rejection under Motoda. However, as correctly cited by the Examiner Motoda does not teach all of the claim limitations of independent claim 18 from which claim 19 depends.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6315858	SHINOZUKA	11-2001
5496408	MOTODA	3-1996
5313982	OHMI	5-1994

(9) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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[1] See attached email.

Claims 1-3, 17, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Motoda; Takashi et al. (US 5,496,408 A). Motoda teaches an apparatus (Figure 7; column 10, line 23 - column 11, line 47) for providing a gas ("impurity gas" on 43a; Figure 7) from a gas supply ("impurity gas" on 43a; Figure 7) to at least two different zones (28, 50a-c, 46a-c; Figure 7; column 10, line 23 - column 11, line 47) in a process chamber (3; Figure 7), comprising: a flow divider (" T " near 43a; Figure 7) for providing a fluid connection to the gas supply ("impurity gas" on 43a; Figure 7), wherein the flow divider (" T " near 43a; Figure 7) splits gas ("impurity gas" on 43a; Figure 7) flow from the gas supply ("impurity gas" on 43a; Figure 7) into a plurality of legs (immediate upstream of " T " near 43a; Figure 7); a master leg (connecting 43a and 44; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7), wherein the master leg (connecting 43a and 44; Figure 7) comprises a master fixed orifice[2] (inherent, all piping have "orifice"; Compare with Applicant's Figure 19); and a first slave leg (connecting 43a and 50a; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7) and in parallel with the master leg (connecting 43a and 44; Figure 7), wherein the first slave leg (connecting 43a and 50a; Figure 7) comprises: a first slave leg (connecting 43a and 50a; Figure 7) valve (29); and a first slave leg (connecting 43a and 50a; Figure 7) fixed orifice (inherent, all piping have "orifice"; Compare with Applicant's Figure 19), as claimed by claim 1.

Motoda further teaches:

i. The apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 1, further comprising: a second slave leg (connecting 43a and 50b; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7) and in parallel with the master leg (connecting 43a and 44; Figure 7) and the first slave leg (connecting 43a and 50a; Figure 7), wherein the second slave leg (connecting 43a and 50b; Figure 7) comprises: a second slave leg (connecting 43a and 50b; Figure 7) valve (29); and a second slave leg (connecting 43a and 50b; Figure 7) fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19), as claimed by claim 2

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[2] Orifice *n* – an opening though which something may pass. Merriam-Webster's Collegiate Dictionary - 10th Ed.

ii. The apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 2, further comprising: a third slave leg (connecting 43a and 50c; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7) and in parallel with the master leg (connecting 43a and 44; Figure 7), the first slave leg (connecting 43a and 50a; Figure 7), and the second slave leg (connecting 43a and 50b; Figure 7), wherein the third slave leg (connecting 43a and 50c; Figure 7) comprises: a third slave leg (connecting 43a and 50c; Figure 7) valve (29); and a third slave leg (connecting 43a and 50c; Figure 7) fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19), as claimed by claim 3

iii. A semiconductor chip formed using the apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 1, as claimed by claim 17 – Applicant's "A semiconductor chip formed using the apparatus" is a recitation of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

iv. The apparatus, as recited in claim 3, further comprising a joining manifold (28; Figure 7) for combining output from the first slave leg (connecting 43a and 50a; Figure 7), second slave leg (connecting 43a and 50b; Figure 7), and the third slave leg (connecting 43a and 50c; Figure 7) connected between the first slave leg (connecting 43a and 50a; Figure 7), second slave leg (connecting 43a and 50b; Figure 7), and the third slave leg (connecting 43a and 50c; Figure 7) and a zone (28; Figure 7) of a process chamber (3; Figure 7), as claimed by claim 20

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 4-7, 9, 10, 12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoda; Takashi et al. (US 5,496,408 A) in view of Shinozuka; Shyuhei et al. (US 6,315,858 B1). Motoda is discussed above. Motoda does not teach

v. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 3, further comprising: a fourth slave leg in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), Motoda's first slave leg (connecting 43a and 50a; Figure 7), Motoda's second slave leg (connecting 43a and 50b; Figure 7), and Motoda's third slave leg (connecting 43a and 50c; Figure 7), wherein the fourth slave leg comprises: a fourth slave leg valve; and a fourth slave leg fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19); and a fifth slave leg in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), Motoda's first slave leg (connecting 43a and 50a; Figure 7), Motoda's second slave leg (connecting 43a and 50b; Figure 7), Motoda's third slave leg (connecting 43a and 50c; Figure 7), and The fourth slave leg, wherein The fifth slave leg comprises: a fifth slave leg valve; and a fifth slave leg fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19), as claimed by claim 4

vi. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 4, further comprising a tuning gas system in fluid connection with at least one of Motoda's master leg (connecting 43a and 44; Figure 7), first slave leg (connecting 43a and 50a; Figure 7), second slave leg (connecting 43a and 50b; Figure 7), third slave leg (connecting 43a and 50c; Figure 7), fourth slave leg, and fifth slave leg, as claimed by claim 5

vii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 5, wherein The tuning gas system comprises: at least one tuning gas source; and at least one mass flow controller, as claimed by claim 6

viii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 6, wherein The tuning gas system is in fluid connection with Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19), as claimed by claim 7

ix. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 8, wherein the first, second, third, fourth, and fifth leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19) are flat plate fixed orifices, as claimed by claim 9

x. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 4, the Motoda's first, second, third, fourth, and fifth leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19) are flat plate fixed orifices, as claimed by claim 10

xi. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 3, wherein the first, second, and third leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19) are flat plate fixed orifices, as claimed by claim 12

xii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 1, wherein Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19) and Motoda's first leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19) are flat plate fixed orifices, as claimed by claim 15

Shinozuka teaches a process gas delivery apparatus (Figure 5; column 4; lines 51-58) including an equivalent flat plate fixed orifice (39; Figure 5, 6) and a tuning gas system (column 4; lines 51-58) including mass flow controllers (43, 49; Figure 2) for process gas delivery and control.

It would have been obvious to one of ordinary skill in that art at the time the invention was made for Motoda to add Shinozuka's equivalent flat plate fixed orifice (39; Figure 5, 6) and tuning gas system (column 4; lines 51-58) including mass flow controllers (43, 49; Figure 2) for process gas delivery and control, inclusive, for Motoda to reproduce his slave leg apparatus parts.

Motivation for Motoda to add Shinozuka's equivalent flat plate fixed orifice (39; Figure 5, 6) and tuning gas system (column 4; lines 51-58) including mass flow controllers (43, 49; Figure 2) is for process gas delivery and control resulting in area-specific substrate processing as taught by Shinozuka (column 1, line 64 – column 2, line 8). Further, it is well established that the duplication of parts is obvious (In re Harza , 274 F.2d 669, 124 USPQ 378 (CCPA 1960) MPEP 2144.04).

Claims 8, 11, 13, 14, 16[1], 17, 18, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoda; Takashi et al. (US 5,496,408 A) and Shinozuka; Shyuhei et al. (US 6,315,858 B1) in view of Ohmi; Tadahiro et al. (US 5,313,982 A). Motoda and Shinozuka are discussed above.

Motoda further teaches a joining manifold (28; Figure 7) for combining output from the first slave leg (connecting 43a and 50a; Figure 7), the second slave leg (connecting 43a and 50b; Figure 7), and the third slave leg (connecting 43a and 50c; Figure 7) connected between the first slave leg (connecting 43a and 50a; Figure 7), the second slave leg (connecting 43a and 50b; Figure 7), and the third slave leg (connecting 43a and 50c; Figure 7) and a zone (28; Figure 7) of the at least two zones (28, 50a-c, 46a-c; Figure 7; column 10, line 23 - column 11, line 47) of the process chamber (3; Figure 7), as claimed by claim 19

Motoda and Shinozuka do not teach Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 7, further comprising a zone selection device connected to

Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19), as claimed by claim 8

Motoda and Shinozuka do not teach:

i. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 10, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19), as claimed by claim 11

ii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 12, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19), as claimed by claim 13

iii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 3, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19), as claimed by claim 14

iv. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 15, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19), as claimed by claim 17

v. An apparatus (Figure 7; column 10, line 23 - column 11, line 47) for providing a gas ("impurity gas" on 43a; Figure 7) from a gas supply ("impurity gas" on 43a; Figure 7) to at least two different zones (28, 50a-c, 46a-c; Figure 7; column 10, line 23 - column 11, line 47) in a process chamber (3; Figure 7), comprising: a flow divider (" T " near 43a; Figure 7) for providing a fluid connection to Motoda's gas supply ("impurity gas" on 43a; Figure 7), wherein Motoda's flow divider (" T " near 43a; Figure 7) splits gas ("impurity gas" on 43a; Figure 7) flow from Motoda's gas supply ("impurity gas" on 43a; Figure 7) into a plurality of legs (immediate upstream of " T " near 43a; Figure 7); a master leg (connecting 43a and 44; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7), wherein Motoda's master leg (connecting 43a and 44; Figure 7) comprises a master flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19); a first slave leg (connecting 43a and 50a; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), wherein Motoda's first slave leg (connecting 43a and 50a; Figure 7) comprises: a first slave leg (connecting 43a and 50a; Figure 7) valve (29); and a first slave leg (connecting 43a and 50a; Figure 7) flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19); a second slave leg (connecting 43a and 50b; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7) and Motoda's first slave leg (connecting 43a and 50a; Figure 7), wherein Motoda's second slave leg (connecting 43a and 50b; Figure 7) comprises: a second slave leg (connecting 43a and 50b; Figure 7) valve (29); and a second slave leg (connecting 43a and 50b; Figure 7) flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19); a third slave leg (connecting 43a and 50c; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), Motoda's first slave leg (connecting 43a and 50a; Figure 7), and Motoda's second slave leg (connecting 43a and 50b; Figure 7), wherein Motoda's third slave leg (connecting 43a and 50c; Figure 7) comprises: a third slave leg (connecting 43a and 50c; Figure 7) valve (29); and a third slave leg (connecting 43a and 50c; Figure 7) flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19); a tuning gas system in fluid connection with at least one of Motoda's master leg (connecting 43a and 44; Figure 7), first slave leg (connecting 43a and 50a; Figure 7), second slave leg (connecting 43a and 50b; Figure 7), and third slave leg (connecting 43a and 50c; Figure 7), wherein The tuning gas system comprises: at least one tuning gas source; and at least one mass flow controller; and a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1; Compare with Applicant's Figure 19), as claimed by claim 18

Ohmi teaches a zone selection device ("monoblock valves" inside dotted lines; Figure 4; column 10; lines 16-30) for a gas delivery apparatus (Figure 1).

It would have been obvious to one of ordinary skill in that art at the time the invention was made for Motoda and Shinozuka to add Ohmi's zone selection device to Motoda and Shinozuka's apparatus.

Motivation for Motoda and Shinozuka to add Ohmi's zone selection device to Motoda and Shinozuka's apparatus is for minimizing "dead zones" as taught by Shinozuka's "monoblock valves" (column 9, lines 5-10).

(10) Response to Argument

Applicant states:

"

The major point of contention is the definition of the term "fixed orifice" as used in the claims. Applicant has proposed a definition that would preclude Motoda from being used to teach this element. The Examiner has provided no prior art that teaches or suggests the claims as interpreted using Applicant's definition of the term "fixed orifice." As such, it appears that the claims would be allowable over the prior art if Applicant's definition were accepted.

Those of ordinary skill in the art recognize that the term "fixed orifice" in the context of the patent application means "a fixed flat plate body, containing a precision fixed geometry." Evidence of this difference is provided in the declaration of Dean Larson, which is of record in the patent file.

"

In response to Applicant's assertion that the Examiner has not provided prior art that teaches or suggests the claims as interpreted using Applicant's definition of the term "fixed orifice.", it has been noted repeatedly by the Examiner that "Applicant's definition" is more restrictive than a "broadest reasonable interpretation". Applicant thus sustains his line of arguments whereby Applicant believes the Examiner is according to broad an interpretation in light of the Examiner's application of an unabridged dictionary definition for "fixed orifice". That Applicant's specification should be a restricting source of guidance in assessing the intellectual boundaries of the subsequent claims is contrary to standard Examination:

"

While the claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. *In re American Academy of Science Tech Center*, **>367 F.3d 1359, 1369, 70 USPQ2d 1827, 1834 (Fed. Cir. 2004)< (The USPTO uses a different standard for construing claims than that used by district courts; during examination the USPTO must give claims their broadest reasonable interpretation.).

"

and..

"

Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1372, 69 USPQ2d 1857 (Fed. Cir. 2004) (Ordinary, simple English words whose meaning is clear and unquestionable, absent any indication that their use in a particular context changes their meaning, are construed to mean exactly what they say.

"

MPEP 2111.01

Applicant further states:

"

The Applicant's definition is based on what one of ordinary skill in the art would understand the term to mean after having reviewed the specification. In addition to pointing out that the Applicant's definition is consistent with the specification, Applicant has also provided evidence in the form of a declaration of one of ordinary skill in the art attesting to the meaning of the term in the context of the patent application. By relying both on what one of ordinary skill in the art would understand the term to mean, and what the specification indicates the term should mean, the Applicant's definition complies with the rules regarding claim interpretation defined in M.P.E.P. 2111.

"

In contrast, the Examiner notes that one of ordinary skill in the art would *not* accord the term "fixed orifice" anything other than its "simple English" definition because Applicant's as-filed specification is devoid of any teaching other than its "simple English" definition as applied by the Examiner because such a term is "absent any indication that their use in a particular context changes their meaning" as the Examiner is guided by in 2111.01. Thus per the Examiner's unabridged definition of fixed orifice[2] a skilled artisan would envision a conduit with a constant ("fixed") cross-sectional area. Applicant's elements 1832, 1841-1845; Figure 18 is consistent with the Examiner's interpretation.

Applicant states:

"

The Examiner also makes no effort to determine whether the selected definition is consistent with or rebutted by statements in the specification. This position is contrary to the rules regarding claim interpretation defined in M.P.E.P. 21

"

In response, the Examiner notes that any *specific* definition, outside of the teaching in the specification, of "fixed orifice" would be consistent with the specification with the exception of a "variable" orifice. This is because the term "fixed orifice" is generic to a broad range of structures. Statements in Applicant's specification do not suggest any other more restrictive definition for "fixed orifice". In fact, "orifice" is used interchangeably with "fixed orifice". For example, section [0076] states “orifice 1832 is relatively wide open, but provides some small resistance on the master leg 1833.” while section [0079] states “Master leg fixed orifice 1832”. Applicant’s specification is devoid of any additional structural facets for the “fixed orifice” which would impart additional functional attributes/benefits other than the functional attributes/benefits derived from the Examiner’s “reasonable interpretation” of the claimed “fixed orifice”[2]. In taking section [0076] which states “orifice 1832 is relatively wide open, but provides some small resistance on the master leg 1833.”, one can substitute a standard pipe to read “pipe 1832 is relatively wide open, but provides some small resistance on the master leg 1833.” which is consistent with standard fluid flow concepts closed channel frictional flow.

Consistent with the Examiner’s above analysis, Applicant states:

“

Furthermore, in the present case, the specification uses the term "fixed orifice" in a way that is consistent with the Applicant's proposed definition and in such a way that is inconsistent with the Examiner's overbroad definition. The specification indicates that a fixed orifice's purpose is to provide a specific resistance. The Examiner's definition is so broad as to allow an opening that provides no resistance at all, or a variable resistance, and thus is contrary to the usage of the term in the patent application.

“

In response, the Examiner disagrees. According to the above statements Applicant’s “fixed orifice” is only to provide “a specific resistance”. However, those of ordinary skill in the art normally refer to Applicant’s selection of a “fixed orifice” to provide “a specific resistance” as mere pipe selection based on coefficient of friction values for the pipe material. This information is commonly made available by vendors to engineers, for example, who are taking into account the well known concept of pipe roughness when considering head loss calculations. As a result if a "fixed orifice" is to provide a fixed "resistance" then *any* pipe selected based on the desired resistance from pipe roughness would provide a fixed "resistance" to flow and thus, according to Applicant's definition, be considered a "fixed orifice". It is noted however, that pipe roughness for all pipes does increase with time regardless of the definition accepted for "fixed orifice".

Applicant further states:

"

Furthermore, the Examiner argues that the iris valve in Shinozuka teaches a flat plate fixed orifice. Applicant respectfully disagrees. The Examiner utilizes a definition of "orifice" from a Collegiate Dictionary to define a fixed orifice as "an opening through which something may pass". In doing so, however, the Examiner ignores the "fixed" portion of the term "fixed orifice". A fixed orifice can be Contrasted to an orifice that is "variable." A fixed orifice would be an orifice whose opening size is not adjustable, or at least not easily adjustable. A variable orifice, on the other hand, would be one whose opening size could be easily adjusted.

"

In response, the Examiner notes that prior to assessing equivalents in the prior art the Examiner first studied Applicant's claimed "flat plate fixed orifice" in both structure and function. Applicant's "flat plate fixed orifice" is illustrated in Figure 19. Figure 19 illustrates a "fixed orifice" pipe with, presumably, a flat plate 1908 somehow obstructing flow. As a result, the Examiner commenced his search by finding a pipe/conduit with a plate-type obstruction in the flow channel. Prior to further starting the search the Examiner envisioned *numerous* concepts that serve the same function and exhibit the same structure of a flat plate – in particular, any gate valve, impingement plate, *and, in particular, an iris valve* as taught by Shinozuka. All iris valve exhibit the same structure and function as Applicant's own "flat plate fixed orifice" as illustrated in Figure 19.

Applicant further states:

"

In a prior amendment, the Applicant pointed out that the iris valve referred to in Shinozuka is variable, not fixed. In response to this argument, the Examiner states: "because Shinozuka's 'variable orifice' iris vale has the capacity of operating as a 'fixed orifice', by setting its opening area and maintaining it constant, then Shinozuka's 'variable orifice' iris valve is capable of performing the intended use and thus provides a 'fixed orifice.'" Applicant respectfully disagrees. Merely because a variable orifice can be placed in one position for a long time, it does not change the orifice into a fixed orifice. Rather, a variable orifice is one whose internal size can easily be adjusted, while a fixed orifice is one whose internal size cannot easily be adjusted. Shinozuka's iris valve can alter its internal size in order to change air flow, and as such is not fixed. A fixed orifice, as provided by Applicant's definition, must provide a specific resistance, not many different resistances based upon the whim of the operator.

"

and..

"

Applicant also notes that the Examiner's interpretation of the term "fixed orifice" renders the term "fixed" nearly meaningless. Specifically, since the Examiner believes that an orifice that can easily alter its internal size such as an iris valve constitutes a "fixed orifice", that means that the examiner believes that a variable orifice is "fixed" merely because it can be set at a particular size at some ...

"

In response, the Examiner maintains his line of reasoning as presented prior. In particular, that an variable structure can be fixed illustrates that this is claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Rudy Zervigon, Primary Examiner, Art Unit 1763

5/23/7

Conferees:

Parviz Hassanzadeh, SPE, Art Unit 1763

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